REMARKS

Upon entry of this amendment, claims 38, 39, 41-45, 47-61, 63-71 and 73-76 will be pending. Claims 38, 39, 41, 43, 45, 48, 49, 57, 58, 59, 61, 63, 64, 66-71, 73 and 74 are currently amended. Claim 46 is canceled without prejudice or disclaimer. Claim 76 is new.

The amended and new claims introduce no new matter. Support for the amendments to independent claims 38, 57 and 70 may be found in the specification at, *e.g.*, page 3, lines 3-4; and page 6, lines 8-10 and 26-27. New claim 76 is supported in the specification at, *e.g.*, Fig. 8. Support for the amendments to dependent claims 39, 58 and 74 may be found in the specification at, *e.g.*, Fig. 4. Claims 41, 43, 45, 48, 49, 59, 61, 63, 64, 66-69, 71 and 73 are amended to better recite that which the Applicant regards as his invention.

The applicant acknowledges the Examiner's finding that claims 53-56 and 66-69 would be allowable if rewritten in independent form so that they are no longer dependent on a rejected base claim.

Headings are used herein solely for clarity of presentation.

A.   OBJECTIONS TO THE DRAWINGS

The Office Action objected to Fig. 8 of the drawings under 37 C.F.R. § 1.84(p)(4) as having duplicate reference characters "G" and "H".

In response, the replacement sheet of drawings includes the following corrections to Fig. 8: the box containing the text "current microcode resumes . . . " is now labeled with reference character "J"; and the box containing the text "receive the remainder . . . " is now labeled with reference character "K". These changes correspond to the specification at page 10, lines 21 and 27.

It is submitted that corrected Fig. 8 fully and completely responds to the drawing objections, and withdrawal of this objection is respectfully requested.

AMENDMENT TO THE DRAWINGS

The attached replacement sheet of drawings includes corrections to Fig. 8, and replaces the original sheet that included Fig. 8. In the replacement sheet, the box in Fig. 8 containing the text "current microcode resumes . . . " is now labeled with reference character "J"; and the box containing the text "receive the remainder . . . " is now labeled with reference character "K". There are not other changes to Fig. 8.

B.   CLAIM REJECTIONS UNDER 35 U.S.C. § 112, FIRST AND SECOND PARAGRAPHS

1.   REJECTION OF PENDING CLAIMS 38-75 UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

The Office Action has rejected claims 38-75 under 35 U.S.C. § 112, first paragraph, contending that no support has been provided for the phrase "unidirectional manner". In response, the amended claims do not recite the phrase "unidirectional manner".

Withdrawal of this rejection is respectfully requested.

2.   REJECTION OF PENDING CLAIM 44 UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

The Office Action has rejected claim 44 under 35 U.S.C. § 112, first paragraph, contending that no support has been provided for the phrase "without resetting or rebooting any processor in said printer".

In response, the Examiner is directed to page 10, lines 13-20. Here, the specification teaches that an executable microcode update module is downloaded while the printer processor is handling other tasks, and that once downloaded, this module is immediately processed by the printer processor without any intervening "resetting or rebooting".

Since the phrase "without any resetting or rebooting" is supported in the specification, withdrawal of this rejection is respectfully requested.

3.   REJECTION OF PENDING CLAIMS 38-75 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

The Office Action has rejected claims 38-75 under 35 U.SC. § 112, second paragraph, contending that the term "specialized" is a relative term which renders the claim indefinite.

In response, Applicant submits that the term "specialized" would be clearly understood by one of skill in the art in the context of the present specification and other claims to mean "not normally present in printers" or specifically " not normally present in printers which do not accept downloaded microcode".

However, without the amended claims do not recite the term "specialized".

Withdrawal of this rejection is respectfully requested.

4. REJECTION OF PENDING CLAIM 39 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

The Office Action has rejected claim 39 under 35 U.S.C § 112, second paragraph, contending that it is unclear how a header portion of a print job file can not be a portion of "job data".

In response, Applicant submits that the rejected recitation would be clearly understood by one of skill in the art in the context of the present specification and other claims to mean that a print job file normally includes a "header data" portion and a separate "job data" portion, which here includes microcode update modules. Since these portions are separate, bits within the "header data" portion are not part of the "job data" portion or its included microcoded update modules.

However, without prejudice the amended claims do not recite the phrase "not in any job data".

Withdrawal of this rejection is respectfully requested.

C. CLAIM REJECTIONS UNDER 35 U.S.C. § 103(A)

The Office Action rejected all pending claims under 35 U.S.C. § 103(a) as unpatentable over US patent no. 4,095,277 to Bluethman et al. (Bluethman), in view of US patent no. 5,659,801 to Kopsaftis (Kopsaftis), and further in view of US patent no. 5,206,736 to Gauronski et al. (Gauronski), or of US patent no. 4,868,866 to Williams (Williams), or of US patent no. 5,649,112 to Yeager et al. (Yeager).

Before specifically addressing these rejections, Applicant briefly summarizes the essentials of the present invention and its claims. For convenience, claim 1 is presented as amended:

38. (Currently amended) A method for a printer linked to a computing device to update microcode of said printer comprising the steps of:

receiving from said computing device one or more files across an interface suitable for conveying information to be printed by said printer, wherein at least one of said files is a print job file comprising an embedded microcode module, said module being one of a plurality of modules in said print job file;

recognizing if a received file is a print job file and if a received print job file comprises an embedded microcode module, else if a received print-job file does not include a microcode module, then normally processing said print-job file; and

writing at least one microcode module received in a print job file to a memory area in said printer indicated in said print job file.

In its essentials, the present application teaches and claims methods and apparatus for replacing, updating, or otherwise maintaining microcode resident in printers by embedding new microcode modules in ordinary print-job files and sending these files with embedded microcode from a linked host computer to a printer over the same interfaces that would be used if the subject print-job file included only data to be printed data (print data). See the specification at, *e.g.*, page 2, line 28 to page 3, line 4; and page 3, lines 10-15.

An important aspect of this invention is its use and processing of print job files with embedded microcode. Thus, to correctly interpret this application and its claims, it must be appreciated that the term "microcode" is well known by those of skill in the art to refer not just to any kind of code, but only to specialized code resident and internal to a hardware device and that directly controls the device's internal components to perform requested operations (usually requested by a linked host computer). See, *e.g.*, Illingworth ed., 1996, *A Dictionary of Computing*, Oxford University Press, pages 308-309; or *McGraw Hill Dictionary of Scientific and Technical Terms*, McGraw Hill, Hew York, 2003, pages 1337-1338; or Declaration at para. 8. Thereby, the host computer need not be at all concerned with the internal operations of its linked peripheral devices. For example, in a printer, internal microcode can generate the signals that control the printer's internal components, such as paper handling assemblies, print engines, and the like, to actually carry out print commands and to print data sent from a linked host computer.

1.   **REJECTION OF CLAIMS 38, 39, 41-46, 50, 52, 57-60, 64, 65 AND 70 OVER BLUETHMAN IN VIEW OF KOPSAFTIS**

The Office Action rejects independent claims 38, 57 and 70 and dependent claims 39, 41-46, 50, 52, 58-60, 64 and 65 over Bluethman in view of Kopsaftis. This rejection is traversed because it is respectfully submitted that none of the three basic elements required for *prima facie* obviousness have been established by the Office Action.

These required elements are summarized in MPEP § 2143[1] as follows:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Applicant addresses each of these three elements in turn in the following.

BLUETHMAN AND KOPSAFTIS DO NOT TEACH ALL ELEMENTS OF THE CLAIMED INVENTION

First, to establish *prima facie* obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations". It is submitted that neither Bluethman nor Kopsaftis teach or suggest the key element of the claimed invention: print jobs with embedded printer microcode.

Bluethman fails to disclose or teach print-job files with embedded microcode. The Office Action recognizes this failure. It contends only that Bluethman discloses embedding print commands in a print job file, and the Examiner states that Bluethman is not relied on for teaching printer microcode. Office Action at page 2, para. 2; and page 7, para. 20. The print commands Bluethman "embeds" in print files include such commands as "print", "modify", "margin left", "adjust", "first line", and the like. Bluethman at, *e.g.*, col. 3, line 65 to col. 4, lines 25. In view of the proper interpretation of the term "microcode" set forth above, such commands cannot be considered microcode. See also Declaration at para. 8.

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[1]   References are to MPEP version 8, revision 2. Citations are generally omitted.

Next, Kopsaftis discloses only a method of transferring disk microcode to a disk device attached to a SCSI bus, and thereby also fails to disclose or teach print-job files with embedded microcode. It has no teachings at all concerning other devices, such as printers, and in fact, no where even mentions or includes the terms "printer", "print" or the like. In fact, this reference explicitly states that the methods taught for disk devices may be applicable only to peripheral devices similar to magnetic disks, such as tape drive or optical disk drives. See Kopsaftis at, e.g., col. 3, lines 24-29; and col. 11, lines 40-45 (applicant notes that optical disk drives have no write-verify command).

Nevertheless, the Office Action contends that "in an analogous environment, Kopsaftis teaches updating the microcode of a printer by sending the microcode to a printer" citing Kopsaftis at col. 15, lines 29-38. These lines are portions of claim 20 that refer to "peripheral devices". If the Office Action somehow considers that the term "peripheral devices" used in claim 20 included printers for the present purposes, it is mistaken for the following reasons.

It is too well known to require support that a prior art reference is interpreted for the purposes of obviousness as would one of ordinary skill in the technical arts of the reference. One of ordinary skill in the art considering Kopsaftis as a whole can only find teaching concerning disk microcode for disk devices attached to a SCSI buses. There is a suggestion that the teachings concerning disk devices attached to SCSI buses drives may be applicable to other types of device attachments (IDE and the like) and to other types of similar devices (tape drives and the like). It is not possible to find in Kopsaftis teachings of suggestions concerning printers or other devices also unlike disk drives.

Moreover, the understanding of one of skill in the technical arts will not be affected by how the term "peripheral devices" appearing in claim 20 might be interpreted before the PTO during prosecution of Kopsaftis or before the courts during litigation of Kopsaftis. Interpretations in these contexts are governed by case and administrative law. In particular, the "broadest reasonable interpretation rule" cannot properly be applied to the claims of Kopsaftis when used as a prior art reference. This rule applies only to Kopsaftis' claims during their prosecution.

In other words, Kopsaftis has no technical teachings or suggestions whatsoever concerning devices, like printers, that are not similar to disk drives. Further, legal rules and conclusions do not add to technical content, and one of ordinary skill in the art would find no technical teachings in any legally determined interpretation of claim 20. Thus the use of "peripheral devices" in claim 20 does not disturb, alter, or broaden in any way the understanding one of ordinary skill in the art derives for Kopsaftis as a whole; namely that Kopsaftis' teachings are limited to transferring disk microcode to a disk device attached to a SCSI bus.

In summary, neither Bluethman nor Kopsaftis in fact do not teach or suggest all elements of the claimed invention because they do not teach or suggest, *inter alia*, print jobs with embedded microcode.

BLUETHMAN AND KOPSAFTIS DO NOT SUGGEST COMBINATION OF THE REFERENCES OR REASONABLE EXPECTATION OF SUCCESS

A prima facie case of obviousness also requires that "there must be some suggestion or motivation to modify the reference or to combine reference teachings", and "a reasonable expectation of success" in this endeavor. Importantly, these teaching and suggestions must be "either in the references themselves or in the knowledge generally available to one of ordinary skill in the art". It is submitted that the Office Action does not establish there requirement by a preponderance of the evidence that can be found in the references or in general knowledge.

The Office Action invokes the following reasoning to justify combining Bluethman and Kopsaftis and modifying their teachings to arrive at the claimed invention.

> Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to embed commands for controlling a printer in a print job file, inputting the job to the printer, modifying the print job, and recognizing that the print job contains commands for controlling the printer as disclosed by Bluethman, where the update commands are microcode updates to be written to the printer memory, as taught by Kopsafkis, since this allows easy updating of printer microcode without need for the printer to use additional software or hardware.

Office Action at page 9 (emphasis added). Applicant contends that, because this teaching cannot be found "either in the references themselves or in the knowledge generally available to one of

ordinary skill in the art", it cannot serve to properly justify combining Bluethman with Kopsaftis and then modifying Bluethman to arrive at the claimed invention.

First, it is not disputed that the required teachings cannot be found "in the references themselves". Indeed the Office Action provides no cites at all to the references where this teaching can be found. Applicant has also diligently reviewed the Bluethman and Kopsaftis references and cannot find such a teaching in either reference. Moreover, such a teaching would not be expected in these references. Bluethman is not concerned with and teaches nothing concerning printer microcode. See Declaration at para. 8. Kopsaftis is concerned transferring disk microcode and, properly interpreted for the present purposes, teaches nothing concerning printers. See Declaration at para. 10.

Further, this teaching is not "in the knowledge generally available to one of ordinary skill in the art". Bluethman "embeds" printer commands in print files by setting aside certain bit combinations (EBCDIC characters) to delimit commands from print data. See Declaration at para. 5 and 6. One of skill in the are would immediately understand, based on general knowledge of device operations, that Bluethman's methods cannot be used to embed printer microcode in printer files for use by the printers of this invention. See Declaration at para. 7. Kopsaftis transfers disk microcode to a disk device attached to a SCSI bus interface by using write-verify commands to a disk block that should never be written to in normal disk operation and by setting aside certain bit combinations in the write data of these special write-verify commands. One of skill in the are would also immediately understand, and also based on general knowledge, that Kopsaftis' methods also cannot be used to embed printer microcode in printer files for the printers of this invention. See Declaration at para. 10.

Therefore, the available evidence establishes that knowledge generally available in the art teaches one of ordinary skill in the art that neither Bluethman's nor Kopsaftis' methods will work, or can be combined to work, to achieve the goal of updating printer microcode.

The Office Action's also makes the conclusory contentions that Bluethman and Kopsaftis are "analogous environments" to the present invention. But this is not the case. Bluethman is unaware of printer microcode and thus cannot be analogous to this invention. Also Kopsaftis' disk drives and the printers of this invention are certainly not analogous or comparable in their

detailed internal operations as controlled by their resident microcodes. See Declaration at para. 11. Thus, there would be no reason to expect that what works for disk drives, such as Kopsaftis' microcode transfer method, would also work for printers. It would be necessary to carry out experimentation. One of ordinary skill in the art would not find the contended environments analogous. Instead, one of ordinary skill in the art would look neither to Kopsaftis nor to Bluethman when confronted with a problem concerning printer microcode.

In summary, the reasoning relied on in the Office Action does not properly establish a "suggestion or motivation to modify the reference or to combine reference teachings", and "a reasonable expectation of success", because it is unsupported by evidence "either in the references themselves or in the knowledge generally available to one of ordinary skill in the art". Thus, these elements of *prima facie* are also not established by the Office Action.

2.   RELIANCE ON THE APPLICANT'S OWN DISCLOSURES MUST BE AVOIDED

Therefore, Applicant respectfully submits that, when consideration is rigorously limited to the available objective evidence concerning the prior art and the generally available knowledge, none of the three requirements of *prima facie* obviousness can be established.

To establish these requirements then necessarily requires keeping the Applicant's own invention in view, and thereby not limiting consideration to the prior art of record. It is only the Applicant's own disclosure that contains the suggestions necessary to arrive at the claimed invention from the prior art. But this is improper hindsight, and MPEP § 2143 states in this regard:

> The teaching or suggestion to make the claimed combination and the
> reasonable expectation of success must both be found in the prior art, not
> in applicant's disclosure.

It is respectfully suggest that the Office Action appears to base its rejections on impermissible hindsight in the reconstructing the claimed invention from the available prior art.

3. **REJECTION OF CLAIMS 45, 48, 49, 51, 61, 63, 71 AND 73-75 OVER BLUETHMAN AND KOPSAFTIS FURTHER IN VIEW OF GAURONSKI OR WILLIAMS OR YEAGER.**

These rejections are traversed for all the above reasons and because neither Gauronski, Williams or Yeager make up for the failure of Bluethman and Kopsaftis to establish *prima facie* obviousness of the independent claims. Neither Gauronski, Williams or Yeager disclose or teach, *inter alia*, print jobs with embedded microcode.

Briefly, Gauronski discloses methods of interrupting jobs in electronic printer/copier machines. See Gauronski at, *e.g.*, Abstract. Gauronski's copier is a standalone unit not attached to a host computer, and thus not capable of receiving print jobs with embedded microcode. Williams discloses an improved low-speed data distribution system for one-way loop interconnects. See Williams at, *e.g.*, Abstract. This reference has no teaching concerning print jobs with embedded microcode, and in fact has no relevance to the present invention.

Yeager discloses updating the control code in the multiple disk drives of a disk drive array. See Yeager at, *e.g.*, Abstract. Control code is updated in one disk drive at a time and special converter code allows disk drives with different control codes to communicate in the disk drive array. This reference has no teaching concerning print jobs with embedded microcode. In fact, this reference, which updates multiple disk drives, is even less analogous to the present invention than is Kopsaftis, which updates only a single disk drive.
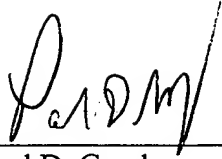
CONCLUSION

In conclusion, it is respectfully submitted for all the above reasons that all independent claims, and thus all dependent claims, are non-obviousness over the cited references taken individually or in any combination.

Therefore, Applicant respectfully submits that all the Examiner's objections and rejections have been addressed and that all of the claims in the present application are allowable. Accordingly, Applicant respectfully requests that the claims be reconsidered and passed to allowance.

Respectfully submitted,

2.24-05
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Date

Paul D. Greeley
Attorney for Applicant(s)
Registration No. 31,019
Ohlandt, Greeley, Ruggiero & Perle, L.L.P.
One Landmark Square, 10th Floor
Stamford, CT 06901-2682
(203) 327-4500